

# **Envisaging the Imminent Factors Shaping Loyalty Perceived by Universitas Terbuka Students of Denpasar Regional Office**

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## ***Abstract***

*Impending factors influencing students loyalty viewed from student expectation, university image, service quality, handling complaints and student satisfaction were explored in this study. It was mainly aimed at recognizing the probable factors engaged in verifying student loyalty at Universitas Terbuka, Indonesia especially behold by students enrolled at Denpasar Regional Office. Specifically, it was also of interest to elucidate the most prominent feature and its attribute perceived from loyalty perspective. This inquest was undertaken utilizing a quantitative approach. All data from respondents for the sake of analysis were brought together by means of survey modus operandi. They were then processed and analyzed employing a Structural Equation Model technique. The process is then technically executed by using Lisrel version 8.30. Population were students who registered in the first semester of 2013 academic year; excluding those from basic education program. A Simple Random Sampling method was taken and 267 out of 400 questionnaires distributed were finally completed chosen from 1,110 population in total. These questionnaires explored six variables with 30 dimensions and 67 attributes through 123 final valid and reliable statements utilizing a Likert Scale 1–5. These instruments were applied to congregate responses from students to ascertain what factors would be in agreement on student loyalty in the Denpasar Regional Office milieu. Eligible respondents were students who registered in 2013 and had been enrolled at least in one semester previously at the relevant program. Student loyalty was the dependent variable. Conversely, student expectation, service quality and university image were the independent variables; likewise, handling complaints and student satisfaction were the intervening variables. Thirteen hypotheses were developed as well as scrutinized and seven of them were finally validated by the analysis. It was conclusively verified that the most substantial factor influencing student loyalty in this framework was student expectation. Besides, the most considerable attributes representing student expectation features were social appreciation and service excellence aspects.*

**Keywords:** *Students loyalty, student expectation, service quality, university image, handling complaints, student satisfaction, structural equation model.*

## **BACKGROUND**

Customer loyalty in the relatively broader sense was determined by several latent factors. Evans & Lindsay (2005) for example incorporated five factors including customer expectation, perceived quality, perceived value, customer satisfaction and customer complaints led to loyalty. This concept is now used in a wider context, including in the university milieu. In service firm the term used is customer while in the university context, as stated by Helgesen & Nettet (2007), the expression used is student. Loyalty in the view of Brown & Mazzarol (2009) was shaped by institutional image and student satisfaction. In university milieu, loyalty was frequently shaped by satisfaction (Singh, 2006). Inquiry on loyalty aspect was then becoming urgent as the bargaining power of customer, student in this regard, is getting more prevalent (D'Aveni, 1994). Loyalty in the past, presents and even in the future is widely accepted as a critical issue of a service firm to be tackled cautiously for the the sake of business survival (Hennig-Thurau, Langer & Hansen, 2001).

Dealing with loyalty concern was therefore explored comprehensively in this study. In a more detailed perspective, especially in the area of institutions offering distance education services, student loyalty is commonly referred to as student persistence or retention (Roberts & Styron, 2009). Garland (1993) also used persistence to express it in the same connotation as the loyalty. These implied that loyalty, persistence or retention had the same implication as compared to the loyalty in consumer behavior discourse.

This inquiry is an augmentation and relatable to the work formerly accomplished concerning the determinants of student loyalty in Universitas Terbuka (Sembiring, 2012). This was also in a row independently with the study completed by Helm, Eggert & Garnefeld (2010). To date, influencing factor related to student loyalty at Universitas Terbuka is becoming critical with respect to retain the size and growth of student body. This becomes insistent as the reality of 80,669 registrations for non-basic education program nationally falls substantially below the planned target, i.e., 110,000 students (Universitas Terbuka, 2011 & 2012). It was presumably predicted that many students did not re-register themselves in the successive semester accordingly.

At this stage, it appears that there was a question of student loyalty. It is for that reason becoming relevant to explore the potential factors might affect loyalty issues in this University. The investigation is devoted especially to those students registered at the Faculty of Social and Politic Science (FSPS), Faculty of Economics (FE) and Faculty of Mathematics and Natural Sciences (FMNS).

## **LITERATURE REVIEW, DEFINITION AND HYPOTHESIS**

Loyalty was analyzed in a German university context using the Relationship Quality-based Student Loyalty Model. It was found that determinants of student loyalty consists of trust in the institution personnel, perceived quality of teaching services, emotional commitment to the institution, cognitive commitment to the institution, and goal commitment (Hennig-Thurau, Langer & Hansen, 2001). In the Italian university milieu, as indicated by Petruzzellis, D'Ugento & Romanazzi (2006), student satisfaction and quality of service determined student loyalty. This outlook was in agreement with what was evidently identified by Zeithaml, Parasuraman and Berry (1990). Moreover, Rojas-Mendez, et al (2009) illustrated that service quality, long-term relationships,

satisfaction, trust and commitment were firmly relatable to the loyalty. This study was done in a Latin American university circumstance.

Referring to related factors in terms of loyalty discourse explored earlier, this cram arrives at the proposition that model used and will be dissected in a more identifiable manner as illustrated in Figure 1 below.

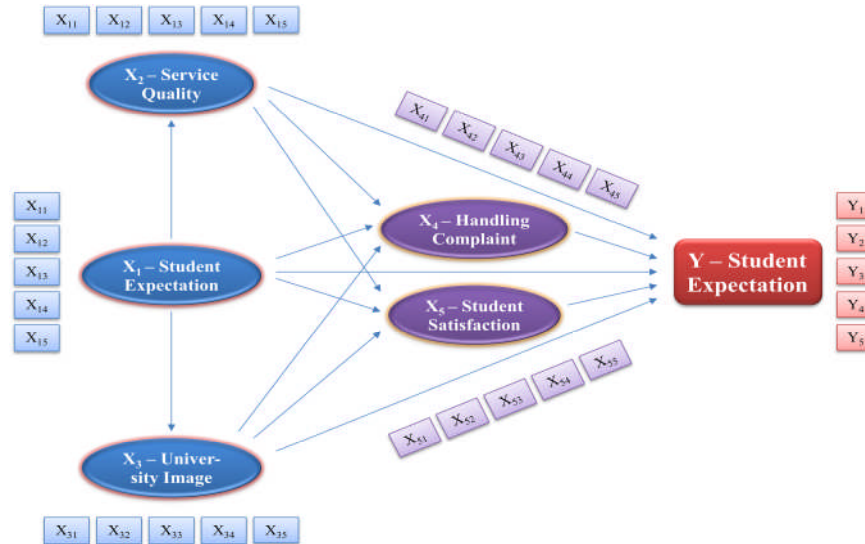


Figure 1: Model Used in the Research

In the implementation, making inquiries for all variables were via questionnaires (six sets in total). Figure 1 above describes factors (and the attributes) that affecting student loyalty at Universitas Terbuka; including student expectations ( $X_1$ ), service quality ( $X_2$ ), university image ( $X_3$ ) lead to handling complaints ( $X_4$ ) and student satisfaction ( $X_5$ ) and finally have an effect on student loyalty ( $Y$ ). Loyalty is the dependent variable. While expectation, service and image were the dependent variables; equally, complaints and satisfaction were the moderating variables (Further explanation of symbols used in Figure 1 are described in Table 1).

In this study, loyalty ( $Y$ ) is defined as student judgment of success in studies completed, recommendations to others, continuing further study in the same university, maintaining relations with the university, and contribution to the alumni association. Looking at the three independent variables, expectation ( $X_1$ ) is defined as student judgment about graduation, academic performance, further career, service excellence and society acknowledgement. The second independent variable, service quality ( $X_2$ ), is defined as students experience in all service related to several aspects such as tangibility, reliability, responsiveness, assurance and empathy. The third independent variable, university image ( $X_3$ ), is defined as perception of student on the activities of the university with respect to partnership, outreach, role and participation, accreditation and student/alumni profiling.

Complaint ( $X_4$ ), the first moderating variable, is defined as student experience in dealing with facing complaint, media of complaining, frequency of asking complaint, the system and finishing of complaint. Satisfaction ( $X_5$ ), as the second intervening variable, is defined as conformance of all services provided by the University and

measured via a questionnaire and viewed from the provision of services on course material, tutorial, exam, registration and general administration aspects.

Having described definitions of all variables involved, 13 hypotheses were subsequently constructed and analyzed by using a quantitative approach under a Structural Equation Model or SEM (Hair et al, 1995). The hypotheses in this study are as follows:

1. H<sub>1</sub> : Loyalty is directly influenced by student expectation
2. H<sub>2</sub> : Loyalty is directly influenced by student service quality
3. H<sub>3</sub> : Loyalty is directly influenced by university image
4. H<sub>4</sub> : Loyalty is directly influenced by handling complaint
5. H<sub>5</sub> : Loyalty is directly influenced by student satisfaction
6. H<sub>6</sub> : Complaint is directly influenced by expectation
7. H<sub>7</sub> : Complaint is directly influenced by service quality
8. H<sub>8</sub> : Complaint is directly influenced by image
9. H<sub>9</sub> : Satisfaction is directly influenced by expectation
10. H<sub>10</sub> : Satisfaction is directly influenced by service quality
11. H<sub>11</sub> : Satisfaction is directly influenced by image
12. H<sub>12</sub> : Service quality is directly influenced by expectation
13. H<sub>13</sub> : Image is directly influenced by expectation.

## **THE FRAMEWORK AND METHODOLOGY**

The research was carried out at Universitas Terbuka, the Indonesia Open University. The University has 37 Regional Offices and one of them is Denpasar which located in the capital city of Bali province, to cater around 9,000 students throughout this exotic and beautiful island. The population is limited to those students who registered in the first semester of 2013 academic year. The respondents, around 1,100 of them, were strictly limited to those registered at FSPS, FE and FMNS in the related academic year. Respondents had also been registered for at least in a semester previously, so they had some experiences and impressions of the University and the program.

This research oriented to a quantitative approach by surveys to collect data from students following Singarimbun & Effendi (1989). Instruments in the form of questionnaires were afterward developed incorporating the six variables involved. Each of variables was subdivided into dimensions, attributes and statements. In this study there are 30 dimensions, 67 attributes and 123 final valid and reliable statements involved respectively in total.

Methodologically, Simple Random Sampling (SRS) technique is used to select a minimum sample of 200 eligible respondents following Firdaus & Affendi (2008) and Sugiyono (2012). Furthermore, in order to be adequate and acceptable, validity and reliability tests were required to be conducted. All statements should be responded properly by respondents. After testing on reliability and validity of the instruments plus normality, linearity and multicollinearity tests, SEM may then be utilized to draw conclusions and illustrate the results descriptively and inferentially (Wijayanto, 2008; Sitinjak & Sugiarto, 2005).

As previously mentioned, there were six sets of questionnaires developed for this research. The first one measures loyalty (Y) under five dimensions and 11 attributes

with 21 statements. The other five set of questionnaires measure expectation ( $X_1$ ) under five dimensions and 10 attributes with 20 statements; service quality ( $X_2$ ) is under five dimensions and 11 attributes with 21 statements; university image ( $X_3$ ) is under four dimensions and 12 attributes with 19 statements; handling complaints ( $X_4$ ) is under five dimensions and 12 attributes with 20 statements; and satisfaction ( $X_5$ ) is under five dimensions and 11 attributes with 22 statements. These approaches were instigated by and subsequently expanded from Tjiptono & Chandra (2011).

In brief, the number of variables, dimensions, attributes, statements (before and after the tryout) involved are outlined in Table 1 above so they can be better studied.

Table 1: The Variables, Dimensions, Attributes and Statements Engaged

<i>No</i>	<i>Variables</i>	<i>Dimensions</i>	<i>Number of ...</i>		<i>Notes</i>
1	Student Loyalty	1. Study completion 2. Recommends to others 3. Study continuation 4. Maintain relations 5. Contribution to alumni	Attributes Statements - Before tryout - After tryout	11 24 21	Dependent Variable (Y)
2	Student Expectation	1. Graduation 2. Academic performance 3. Career/Job 4. Service excellence 5. Social appreciation	Attributes Statements - Before tryout - After tryout	10 25 20	Independent Variable 1 ( $X_1$ )
3	Service Quality	1. Tangible 2. Reliability 3. Response 4. Assurance 5. Empathy	Attributes Statements - Before tryout - After tryout	11 22 21	Independent Variable 2 ( $X_2$ )
4	University Image	1. Partnerships 2. Outreach 3. Role and Contribution 4. Accreditation 5. Alumni/student profile	Attributes Statements - Before tryout - After tryout	12 20 19	Independent Variable 3 ( $X_3$ )
5	Handling Complaints	1. Facing complaints 2. Media for complaining 3. Frequencies 4. System 5. Finishing	Attributes Statements - Before tryout - After tryout	12 21 20	Intervening Variable ( $X_4$ )
6	Student Satisfaction	1. Modules 2. Tutorials 3. Exams 4. Registration 5. General administration	Attributes Statements - Before tryout - After tryout	11 22 22	Intervening Variable ( $X_5$ )

## FINDINGS AND DISCUSSIONS

As anticipated, the model used in this study is in essence relevant to Universitas Terbuka context as the focus of the inquest. However, before discussing the results, it is useful to portray the characteristics of selected students as the respondents. This will provide us better context for the findings (Table 2).

Next, the output after processing the whole filled returned questionnaires can only be moved forward after performing the normality, lienarity and multicollinearity testing to

the obtained data. Having conducted these tests, further process can then be done under SEM method. All assessments were indeed validated by the assessments.

Table 2: Respondents' Characteristics, Population, Samples & Questionnaires

No	Description	Notes
1	Students' domicile	Denpasar, BALI Regional Office
2	Population Minimum samples	1,100 students 240 stundets
3	Questionnaires - Provided, distributed - Returned, processed	400 sets 267 sets
4	Age	18-24 = 36.4%; 25-29 = 24.9%; 30-34 = 18.6%; 35-39 = 12.6%; 40-44 = 4,8% ; 45-50 = 2.2%; > 50 = 0.4%
5	Study at UT for ..... (Y: Year)	1Y = 12,6% ; 2Y = 30,9% ; 3Y = 19,0%; 4Y = 34,9% ; 5Y or more = 2.6%
6	Grade Point Average (GPA)	0.00-1.49 = 5,9% ; 1.50-1.99 = 18.2% 2.00-2.49 = 40.5% ; 2.50-2.99 = 23.8%; 3.00-3.49 = 10,4% ; 3.50-4.00 = 1.1%
7	Study in other university	4,1%
8	Gender	Female = 52.4% ; Male = 46.6%
9	Professions	Teacher = 4.1; Public Service = 9.7%; Private Sector = 60.6%; Army/Police = 2.6%; Entrepreneur = 7,1%; Unemployed = 12.3%; Others = 0.7%

To get better embodiment, the outputs of those SEM are described in the following details, including both in related figures and tables. The first result needs to be validated is with reference to the 13 hypotheses of the study. To be better appreciated, let us take a look the following figure on the *t*-test results illustrated below.

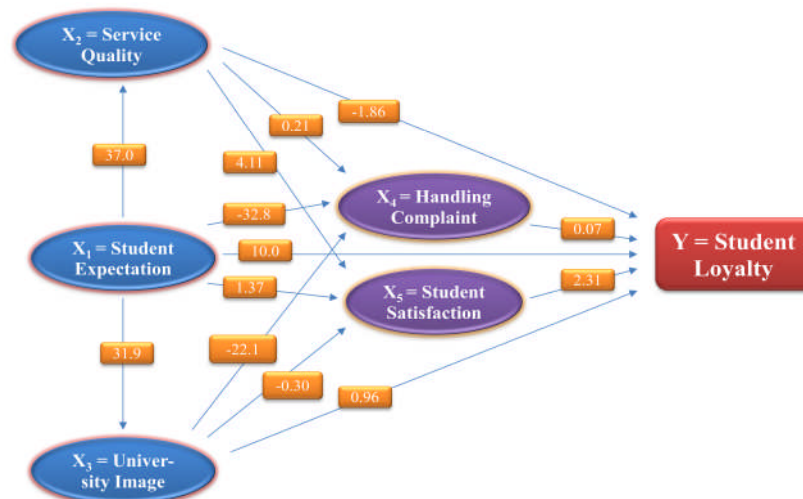


Figure 2: The t-Value of the Model

Figure 2 above exemplifies hypotheses which of them were validated or not by the analysis. The required value for the *t*-test is greater than  $\pm 1.96$ . The next output of SEM is on the method of estimated model measurement. The aim is to notice conformation on the influential powers amongst the variables engaged by considering the loading factor. To see those related points evidently, let us notice the following figure.

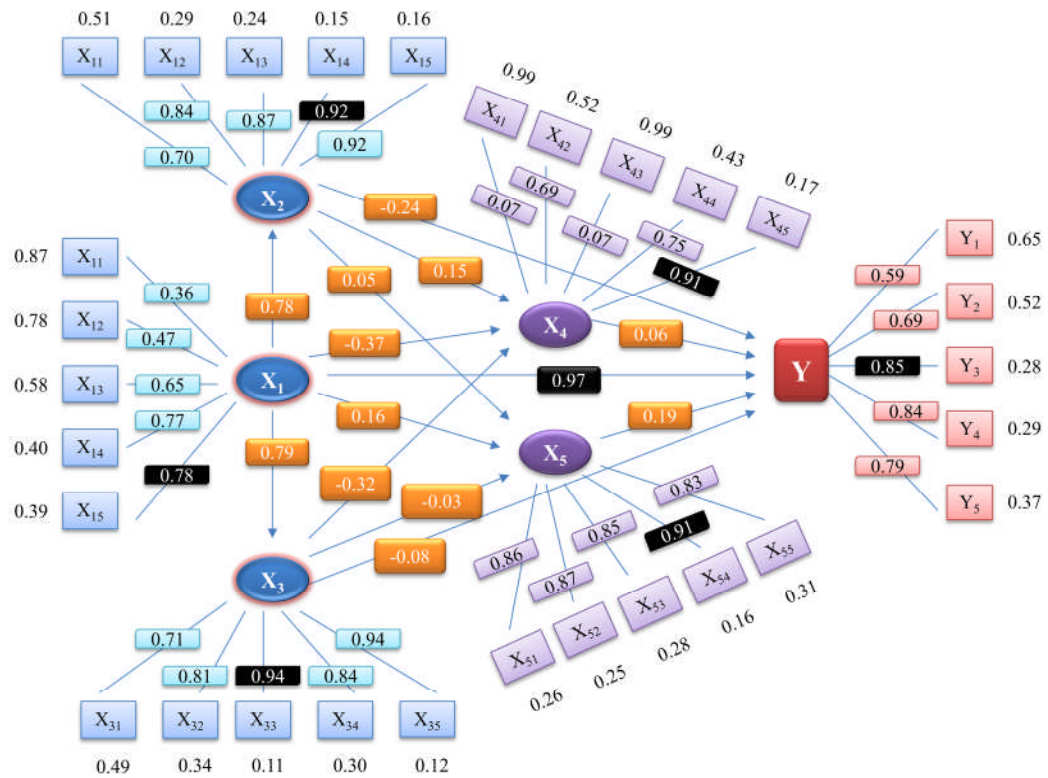


Figure 3: Loading Factor Measurement of the Model

To be better distinguished, the summary of all values in both figures will be jointly set in Table 3 illustrated below.

Table 3: The t-Value and Loading Factor of the Model

No	Relation	Description	t-Value	Loading Factor	Notes
1	$X_1 \rightarrow X_2$	Expectation to service quality	37.0	0.78	Approved
2	$X_1 \rightarrow X_3$	Expectation to university image	31.9	0.79	Approved
3	$X_1 \rightarrow X_4$	Expectation to complaint	-32.8	-0.37	Approved
4	$X_1 \rightarrow X_5$	Expectation to satisfaction	1.37	0.16	Disapproved
5	$X_1 \rightarrow Y$	Expectation to loyalty	10.0	0.97	Approved
6	$X_2 \rightarrow X_4$	Service quality to complaint	0.21	0.15	Disapproved
7	$X_2 \rightarrow X_5$	Service quality to satisfaction	4.11	0.05	Approved
8	$X_2 \rightarrow Y$	Service quality to loyalty	-1.86	-0.24	Disapproved
9	$X_3 \rightarrow X_4$	University image to complaint	-22.1	-0.32	Approved
10	$X_3 \rightarrow X_5$	University image to satisfaction	0.30	-0.03	Disapproved
11	$X_3 \rightarrow Y$	University image to loyalty	0.96	-0.08	Disapproved
12	$X_4 \rightarrow Y$	Complaint to loyalty	0.07	0.06	Disapproved
13	$X_5 \rightarrow Y$	Satisfaction to loyalty	2.31	0.19	Approved

Table 3 comprehensively gave us a picture of the relations and influential powers amongst variables involved. It predominantly confirmed on the five vital details as a wrapping up of the study.

1. The first fact is that seven out of 13 of the hypotheses were validated by the analysis. This implies that other six of them were disapproved by the assessment

2. The second fact is that only expectation ( $X_1$ ) and satisfaction ( $X_5$ ), as the main variables, affected loyalty ( $Y$ ). This means that loyalty was not influenced directly by university image, service quality and handling complaint
3. The third fact is that the most influential feature affecting loyalty was student expectation; the predominant attributes representing students expectation were social acknowledgement ( $X_{15} = 0.78$ ) and service excellence ( $X_{14} = 0.77$ )
4. The forth fact is that (referring to the dependent variable, loyalty) the respondents considered and put study continuation ( $Y_3 = 0.85$ ) and maintain relations ( $Y_4 = 0.84$ ) as the first and the second priority
5. The fifth fact is that respondents regarded services compellingly related to registration ( $X_{54} = 0.91$ ) and tutorial ( $X_{52} = 0.87$ ) as the representatif of satisfaction.

Referring to values attached in related attributes (notice the values attached to  $X_{1n}$ ,  $X_{2n}$ ,  $X_{3n}$ ,  $X_{4n}$ ,  $X_{5n}$  and  $Y_n$  in Figure 3), it can then be presumed that the results were reliable. This is so as the values of error measurements were smaller than that of the loading factor especially for significant variables/attributes. The output of the analysis also approved goodness fit of the model. They are in the category of Good Fit.

## NOTEWORTHY COMMENTS AND COROLLARY

The model of the study was validated under SEM method which assessed the empirical data from a survey of 267 students of the three faculties at Universitas Terbuka enrolled at Denpasar Regional Office. The study ascertains that student expectation is the main determinant to student loyalty. Besides, students satisfaction is a subsequent factor leads to loyalty. This results are comparable to the findings maintained by Anwar (2011) and Arisetyanto (2010). To certain extent, this upshot is also in line with the work of Ostergaard & Kristensen (2005) by saying that under cross-institutional result based on ECSI methodology might drive satisfaction and loyalty at different level in higher education. Looking at attributes representaing expectation and satisfaction in relations to service excellence and registration aspect respectively, they are supplementing each other to the findings underlined by both Ali & Ahmad (2011) & Dib & Alnazer (2013).

At this point, it is worth to anticipate any kind of service leads to satisfaction, as emphasized by Sahin (2007), primarily those services related to registartion and tutorial in response to the fulfillment of student expectation. By capturing this phenomena in advance will initiate loyalty in broader sense. Despite the results did not find that service quality and image as the determinant to loyalty, the University should try to improve the quality of services that gradually improving the reputation, as put forward by Martsenovsky (2008). Enlarging university roles and contribution to the society as well as ensuring service quality in every aspect of the services to students will initiate a loyalty among registered and prospective students. This is true as loyalty influenced by satisfaction through reputation frequently become indicators of customer orientation in the public sector (Andreassen, 1994). This is so as in the future desires might change along with the development of technological supports in education (Swail, 2004).

Consequently, auxiliary research is necessary by exploring loyalty factors beyond to the five variables involved here. The scope of the study should also be expanded further than students registered in Denpasar Office for bachelor's degrees only; similar research would be relevant to students in the diplomas and graduate programs. By doing so, it would put forward a more comprehensive perspective on student loyalty inquiry.



Meeting the needs of students as the distance learners will improve persistence rates (Sampson, 2003). By accomplishing this, it will help the University concurrently retain and improve the student body accordingly. This hope indisputably will give opportunity to the university to capture more parts in facilitating the government to eradicate restraints in gaining access to higher education for the nations. If this equilibrium exist, it insinuates the University on desirable pathway making higher education open to all. It is in this juncture the University in the respectable corridor to hound a real desire, becoming a more reputable university in the provision of flexible quality education.

## REFERENCES

- Ali, A & I. Ahmad. (2011). Key factors for determining students' satisfaction in distance learning courses: A case study of AIOU Pakistan. *Contemporary Ed. Tech*, Vol 2 (2), 2011, pp. 118-134.
- Andreassen, T.W. (1994). Satisfaction, loyalty and reputation as indicators of customer orientation in the public sector. *International Journal of Public Sector Management*, Vol 7 (2), pp. 16-34.
- Anwar, Saiful. (2011). Pengaruh kepuasan dan public relations perception terhadap loyalitas mahasiswa melalui reputasi universitas. *Tesis*, UNM, Malang.
- Arissetyanto, N. (2010). Analisis keterkaitan antara kepuasan proses belajar mengajar, citra, dan loyalitas di perguruan tinggi. *Disertasi*, Institut Pertanian Bogor, Bogor.
- Brown, R.M & T.W. Mazarol. (2009), The Importance of Institutional Image to Student Satisfaction and Loyalty within HE, *High. Educ*, **58**, pp. 81-95.
- D'Aveni, R.A. (1994). *Hyper—competition: Managing the Dynamic of Strategic Maneuvering*. New York: Free Press.
- Dib, H & M. Alnazer. (2013). Conceptual model of student satisfaction in Syrian universities. *European Journal of Economics, Finance & Administrative Sciences*, Iss 56, Jan 2013, pp. 12-20.
- Evans, J.R & W.M. Lindsay. (2005). *The Management and Control of Quality*. 6<sup>th</sup> Edition. USA, South-Western: Thomson.
- Firdaus, M & F.M. Afendi. (2008). *Aplikasi Metode Kuantitatif Terpilih untuk Manajemen dan Bisnis*. Bogor: IPB PRESS.
- Garland, M.R. (1993). Student perceptions of the situational, institutional, dispositional and epistemological barriers to persistence, *Distance Education*, **14** (2), 181-198.
- Hair, J.F et al. (1995). *Multivariate Data Analysis with Readings*. 4<sup>th</sup> Edition. New Jersey, USA: Prentice-Hall, Inc.
- Helgesen, O & E. Nettet. (2007), Images, satisfaction and antecedents: Drivers of student loyalty? Case Study, Norwegian University College, *Corp. Reputation Review*, **10**, 38-59.
- Helm, S, A. Eggert & I. Garnefeld. (2010). Modeling the impact of corporate reputation on customer satisfaction and loyalty using partial least squares. *Springer Handbook of Computational Statistics*, Part 2, 2010, pp. 515-534.

- Hennig-Thurau, T., M.F. Langer & U. Hansen. (2001), Modeling and Managing Student Loyalty: An Approach Based on the Concept of Relationship Quality, *J. of Service Research*, **3** (4), 331-344.
- Lisrel version 8.30
- Martsenovskiy, V. (2008). Students' expectations research as an estimating base of educational service quality level. *Annals Computer Science*, **6** (1), pp. 145-152.
- Ostergaard, P & K. Kristensen. (2005). Drivers student satisfaction and loyalty at different levels of higher education. *The Aarhus School of Business*, Denmark, 2005, pp. 1-19.
- Petruzzellis, L., A. M. D'Uggento & S. Romanazzi. (2006). Student satisfaction and quality of service in Italian universities, *Managing ServQuality*, **16** (4), 349-364.
- Roberts, J & R. Styron, Jr. (2009), Student atisfaction and ersistence: Factors vital to student retention", *Research in Higher Education Journal*, pp. 1-18.
- Rojas-Mendez, J.I, et al. (2009). Determinants of students loyalty in higher education: A tested relationship approach in Latin America". *Latin American Business Rev*, **10**, 2009, 21-39.
- Sahin, I. (2007). Predicting student satisfaction in distance education and learning environments". *Turkish Online Journal of DE*, Vol **8** (2), April 2007, pp. 113-119.
- Sampson, N. (2003). Meeting the needs of distance learners. *Language Learning & Technology*, Volume **7**, Number 3, September 2003, pp. 103-118.
- Sembiring, M.G. (2012). Determinants of students' loyalty at Universitas Terbuka. *Paper presented at the 26<sup>th</sup> Annual Conference of Asian Association of Open Universities (AAOU)*, hosted by The Open University of Japan, 16 – 18 Oct. 2012
- Singarimbun, M & S. Effendi. (1989). *Metode Penelitian Survai*. Editor. Jakarta: LP3ES.
- Singh, H. (2206). The importance of customer satisfaction in relation to customer loyalty and retention, *Asia Pacific University College of Tech & Innovation, Malaysia* (WP-06-06).
- Sugiyono. (2012). *Metode Penelitian Kombinasi (Mixed Method)*. Bandung: Alfabeta.
- Sitinjak,T.J.R & Sugiarto. *Linear Structural Relationships*. Yogya: Graha Ilmu, 2005.
- Swail, W.S. (2004). *The Art of Student Retention*. Educational Policy Institute, 20<sup>th</sup> Annual Recruitment and Retention Conference, Texas, 21 June 2004. USA: Magna Pub. Inc.
- Tjiptono, F & G. Chandra. (2011). *Service, Quality & Satisfaction*. Yogyakarta: Andi.
- Universitas Terbuka. (2011). *Strategic and Operational Planning of Universitas Terbuka 2011-2021*. Revised Version. Jakarta: Universitas Terbuka.
- Universitas Terbuka. (2012). *Yearly Report 2011*. Jakarta: Universitas Terbuka.
- Wijayanto, S.H. (2008). *Structural Equation Modeling – Lisrel 8.8*. Yogyakarta: Graha Ilmu.
- Zeithaml, V.A., A. Parasuraman & L.L. Berry. (1990). *Delivering Quality Service: Balancing Customer Perceptions and Expectaitions*. New York: The Free Press.